CLAIMS

We claim:

1. A method comprising:

at least one clearing of a plurality of first connections between a first node and a second node of an ATM network from the first node; and

for each said clearing, sending a first message from the first node to the second containing an identification of the first connections.

2. The method defined in claim 1 further including:

receiving the first message at the second node;

clearing the first connections from the second node in response to the received first message; and

sending a single second message from the second node to the first node in response to at least one of clearing the first connections from the second node and receiving the first message identifying at least one of the

connections cleared in response to the received first message, and

the first message.

3. The method defined in claim 2 further including enabling an interpretation of the received first message wherein the clearing from the second node depends upon the enabling.

4. The method defined in claim 2 further including:

the first node maintaining a database of at least one of

a connections cleared and identified in the first message; and

both

a connections cleared and identified in the first message, and

a connections cleared and identified in the first message but not identified in the second message; and

the first node receiving the second message sent from the second node to the first node.

5. The method defined in claim 4 wherein each clearing defined in claim 1 has an associated distinct identification, and further the database uses as a root for the connections cleared and identified in each first message the distinct associated identification.

6. A method comprising:

receiving a first message by a first node of an ATM network from a second node of the ATM network connected to the first node by at least one first connections;

clearing the first connections from the second node in response to receiving the first message; and

sending a second message from the first node to the second node identifying at least one of the first connections cleared from the second node and the first message.

7. The method defined in claim 6 further including enabling an interpretation of the received first message wherein the clearing from the first node depends upon the enabling.

8. The method defined in claim 6 further including :

clearing the first connections from the second node; and wherein

the first message includes an identification of the first connections.

9. A method of clearing a plural number of connections between a first node and a second node in an Asynchronous Transfer Mode network including:

sending at least one first message from the first node to the second node, each first message including an identification of at least one of

each of a plural number of first connections to be cleared from the second node by the first message, and

each of a plural number of first connections that is one of cleared from the first node and to be cleared from the first node.

10. The method defined in claim 9 further including for each said first message, clearing from the first node each said first connection.

11. The method defined in claim 9 wherein the first message is consistent with an Asynchronous Transfer Mode formatted message.

12. The method defined in claim 9 further including enabling the first node to send the first message before the sending.

13. The method defined in claim 9 wherein the sending is in response to a requirement for a clearing of a plural number of first node connections.

14. The method defined in claim 9 wherein the sending is in response to an event that includes at least one of:

a received Physical interface reset command,

a received Virtual interface reset command,

a received Datalink Layer Service-Specific Connection-Oriented Protocol reset,

a received Global path ATM Forum defined RESTART message,

a received Virtual Path ATM Forum defined RESTART message,

a received plural number of RELEASE messages, and

a received Force Reroute in a Semi-Permanent Switched Virtual Circuit based network.

15. The method defined in claim 9 wherein the first message includes at least an identification of each of the first connections to be cleared from the second node, and further including:

the second node receiving the first message, and

the second node clearing each of the connections in the second node identified as to be cleared from the second node in the first message in response to receiving the first message.

16. The method defined in claim 10 further including the first node placing into a first database a record that includes an identification of each first connection cleared from the first node.

17. The method defined in claim 10 further including:

the first node placing into a first database a first record that includes an identification of each first connection cleared from the first node, and into a second database a second record that includes an identification of each first connection cleared from the first node;

the second node receiving each first message;

the second node clearing each of the first connections identified in each received first message;

the second node sending a second message to the first node in response to each received first message that includes an identification of each connection that is one of cleared and to be cleared from the second node;

the first node in response to receiving each second message, deleting form the second database the identification of each connection identified in the second message.

18. The method defined in claim 15 further including enabling the second node to receive the first message before the receiving.

19. The method defined in claim 15 further including sending at least one of

a second message to the first node identifying the connections cleared by the second node in response to the second node receiving the first message, and

a second message to the first node identifying the first message received by the second node.

20. The method defined in claim 15 further including enabling the second node to send the first message before the sending.

21. The method defined in claim 17 further including enabling the first node to receive the second message before the second node sending the second message.

22. The method defined in claim 17 wherein an index in each said first record includes the identification of a first connection.

23. The method defined in claim 17 wherein an index in each second record includes the identification of a first connection.

24. The method defined in claim 17 wherein a root of the first database is an identification of the first message.

25. The method defined in claim 17 wherein a root of the second database is an identification of the first message.

26. The method defined in claim 19 further including enabling the first node to receive the second message before the sending of a second message to the first node.

27. An Asynchronous Transfer Mode (ATM) node that includes

a first circuit that generates an inter-nodal call control first message containing an identification of at least one of

each of a plural number of first connections to be cleared at an ATM first node to be coupled to the ATM node, and

each of a plural number of first connections that is one of

cleared from the ATM node and

to be cleared from the ATM node; and

a second circuit to transmit the first message to the first node.

28. The ATM node defined in claim 27 that further includes a circuit to enable one of the generation of the first message and the transmission of the first message, in response to an input if the ATM node was disabled; and to disable the ATM node from one of the generation of the first message and the transmission of the first message in response to an input if the ATM node was enabled.

29. The ATM node defined in claim 27 that further includes a circuit to clear each of the first connections.

30. The ATM node defined in claim 27 that further includes a circuit to receive a second message containing an identification of at least one of each of a plural number of second connections that is one of cleared from a first node and to be cleared from the first node.

31. The ATM node defined in claim 30 that further includes a database of the first connections that are cleared from the ATM node, and a data base of the first connections that are cleared from the ATM node from which are deleted those first connections that are identical to the second connections in the received second message.

32. The ATM node defined in claim 27 that further includes

a circuit to receive and interpret a second message from a coupled second node that contains an identification of a plural number of second connections; and

a circuit to clear the second connections from the ATM node.

33. The ATM node defined in claim 32 that further includes

a circuit to send a third message from the ATM node to the second node that identifies a plural number of third connections, the third connections characterized by at least one of the connections cleared by the ATM node in response to the second message, and the second connections.

34. An Asynchronous Transfer Mode (ATM) node that includes

a first circuit to receive and interpret a first message from a first node that contains an identification of a plural number of first connections; and

a second circuit to clear the first connections from the ATM node.

35. The ATM node defined in claim 34 further including

a third circuit to send an ATM inter-nodal call control second message from the ATM node to the first node that identifies a plural number of second connections, the second connections characterized by at least one of the connections cleared by the ATM node in response to the first message, and the first connections.

36. The ATM node defined in claim 34 further including a circuit to enable the first circuit to interpret the first message in response to an enabling input.

37. An inter-nodal message for reception by an Asynchronous Transfer Mode (ATM) node that includes a plurality of identified connections to clear from the node.

38. The message defined in claim 37 that further includes a transaction identification.

39. The message defined in claim 37 that further includes a field positioned according to ATM protocol as a message type whose content is an identification of a type of the message.

40. An inter-nodal first message for transmission by an Asynchronous Transfer Mode (ATM) first node to an ATM second node in response to a reception by the first node of an inter-nodal second message from the second node identifying a plural number of connections to clear from the first node that includes an identification of the plural number of connections.

41. The message defined in claim 40 that further includes a transaction identification.

42. The message defined in claim 40 wherein the second message includes a transaction identification and the first message includes the transaction identification.

43. The first message defined in claim 40 that further includes a field positioned according to ATM protocol as a message type whose content is an identification of a type of the first message.

44. A machine-readable medium that provides instructions, which when executed by at least one processor, cause said processor to perform operations comprising preparing at least one first message to be sent from a first node of an ATM network to a second node of an ATM network, each first message including an identification of a first connections to be cleared from the second node by the first message.

45. The operations defined in claim 44 further including for each said first message, clearing from the first node each said first connection.

46. The operations defined in claim 45 further including the first node placing into a first database a record that includes an identification of each of the first connections cleared from the first node.

47. The operations defined in claim 45 further including:

the first node placing into a first database a record that includes an identification of each first connection cleared from the first node, and into a second database a record that includes an identification of each first connection cleared from the first node;

the first node interpreting a third message received from the second node after the first message is prepared that includes an identification of at least one connection;

the first node in response to interpreting each third message, deleting form the second database the identification of each of the connections identified in the third message.

48. The operations defined in claim 44 wherein the first message is consistent with an Asynchronous Transfer Mode formatted message

49. The operations defined in claim 44 further including interpreting a second message consistent with an Asynchronous Transfer Mode formatted message received from an ATM network node wherein the second message includes an identification of each of a plural number of connections to be cleared from the first node

50. The operations defined in claim 49 further including clearing each of the connections in the first node identified as to be cleared in the second message in response to interpreting the second message.

51. The operations defined in claim 49 further including preparing at least one of

a third message to the ATM network node identifying the connections cleared by the first node in response to the first node interpreting the second message, and

a third message to the ATM network node identifying the second message received by the first node.

52. An Asynchronous Transfer Mode (ATM) node that includes

means for generating an inter-nodal call control first message type that is to identify at least one of

each of a plural number of first connections to be cleared at an ATM first node coupled to the ATM node, and

each of a plural number of first connections that is one of

cleared from the ATM node and

to be cleared from the ATM node; and

means for transmitting the first message to the first node.

53. The ATM node defined in claim 52 that further includes means for enabling one of the generation of the first message and the transmission of the first message, in response to an input if the ATM node was disabled, and for disabling one of the

generation of the first message and the transmission of the first message in response to an input if the first node was enabled.

54. The ATM node defined in claim 52 that further includes means for clearing each of the first connections.

55. The ATM node defined in claim 52 that further includes means for receiving a second message type containing an identification of at least one of each of a plural number of second connections in response to the first node receiving the first message type that is one of cleared from a second node and to be cleared from the second node.

56. The ATM node defined in claim 55 that further includes a database of the first connections that are cleared from the ATM node, and a data base of the first connections that are cleared from the ATM node from which are deleted the second connections in the received second message type.

57. The ATM node defined in claim 52 that further includes

means for receiving a first message type from a second node, the third message type containing an identification of a plural number of second connections;

means for interpreting the received first message type; and

means for clearing the second connections from the ATM node in response to the interpreting.

58. The ATM node defined in claim 57 that further includes

means for sending a second message type from the ATM node to the aecond node that identifies a plural number of third connections, the third connections characterized by at least one of the connections cleared by the ATM node in response to the interpreting, and the second connections.